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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,910	10/20/2003	Kunikazu Ohnishi	62807-145	2266

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Washington, DC 20005-3096

EXAMINER

GOMA, TAWFIK A

ART UNIT	PAPER NUMBER
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2627

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,910

Applicant(s)

OHNISHI ET AL.

Examiner

Tawfik Goma

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to the amendment filed on 9/26/2006.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Katayama (US 6282164).

Regarding claim 1, Katayama discloses an optical pickup comprising: a laser light source (1, fig. 1); a beam separation means which separates a laser beam emitted by the laser light source into at least three beams (3a, fig. 1); a converging optical system which converges the three beams and forms three separate convergence spots on a recording surface of an optical information record medium (5, fig. 1 and fig. 8); and a photodetector which is placed to receive each of reflected beams of the three convergence spots from the optical information record medium with a photoreceptor surface divided into at least two faces (8b, fig. 9), wherein: the beam separation means is divided into at least three areas (18a, 18b, 18c, fig. 7), first through third areas, each of which has prescribed periodic structure (fig. 7), and the first area is placed between the second and third areas (18b, fig. 7), and the second area has periodic structure that is shifted from that of the first area by approximately 90 degrees in the phase of the periodic structure (col. 10 lines 53-67), and the third area has periodic structure that is shifted from that

of the second area by approximately 180 degrees in the phase of the periodic structure (col. 10 lines 53-67).

Regarding claim 2, Katayama further discloses wherein the three convergence spots are formed such that the interval between adjacent convergence spots measured in a direction substantially orthogonal to guide grooves periodically formed on the recording surface of the optical information record medium is approximately equal to zero or an integral multiple of a pitch between the guide grooves (fig. 8).

Regarding claim 3, Katayama discloses an optical information recording/reproducing apparatus for reading or writing information from/to an optical information record medium by laser beam irradiation (fig. 1), comprising: an optical pickup including a laser light source (1, fig. 1), a beam separation means which separates a laser beam emitted by the laser light source into at least three beams (3b, fig. 7), a converging optical system which converges the three beams and forms three separate convergence spots on a recording surface of the optical information record medium (fig. 1 and fig. 8), and a photodetector which is placed to receive each of reflected beams of the three convergence spots from the optical information record medium with a photoreceptor surface divided into at least two faces (8b, fig. 9); and a tracking error signal detection means having the function of detecting a tracking error signal according to a differential push-pull method by executing proper operations to signals obtained from the photoreceptor surfaces of the photodetector of the optical pickup (col. 11 lines 29-43), wherein: the beam separation means is partitioned into at least three areas (18a, 18b, 18c, fig. 7), first through third areas, each of which has prescribed periodic structure, and the first area is placed between the second and third areas, and the second area has periodic structure that is

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shifted from that of the first area by approximately 90.degree in the phase of the periodic structure, and the third area has periodic structure that is shifted from that of the second area by approximately 180.degrees in the phase of the periodic structure (col. 10 lines 53-67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama (US 6202164) in view of Kuribayashi et al (US 2003/0031103).

Regarding claim 4, Katayama discloses an optical information recording/reproducing apparatus comprising: an optical pickup including a laser light source (1, fig. 1), a beam separation means which separates a laser beam emitted by the laser light source into a main beam and at least two sub beams (19a, 19b, 19c, fig. 8), a converging optical system which converges the main beam and the sub beams and forms three separate convergence spots on a recording surface of an optical information record medium on which guide grooves are formed at preset pitches (fig. 8), and a photodetector which is placed to receive each of reflected beams of the three convergence spots from the optical information record medium with a photoreceptor surface divided into at least two faces (8b, fig. 9); a push-pull signal generation circuit which generates push-pull signals regarding the main beam and the sub beams respectively by executing proper operations to photoelectric signals obtained from the

photoreceptor surfaces of the optical pickup (col. 11 lines 29-43); a differential push-pull signal generation circuit which generates a differential push-pull signal by adding all or part of the push-pull signals regarding the sub beams together (col. 11 lines 34-36), amplifying the added signal by an amplification factor K, and subtracting the amplified signal from the push-pull signal regarding the main beam (col. 11 lines 34-36). Katayama fails to disclose an amplification factor control means which changes the amplification factor K depending on the interval between the guide grooves of the optical information record medium. In the same field of endeavor Kuribayashi discloses a 3 beam optical pickup that has a coefficient controlling unit (19, 20, fig. 1) for adjusting a gain factor K depending on the interval between the guide grooves of the optical information record medium (fig. 3 and par. 144-146). Kuribayashi adjusts the coefficients based on a cross talk between adjacent guide grooves. The cross talk signal is dependent on the interval between the guide grooves. Kuribayashi also discloses that the coefficients can be set as a function of the track pitch as shown in figures 2a-2c, fig. 3 and pars. 84 and pars. 100-102. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the optical pickup disclosed by Katayama with the coefficient control taught by Kuribayashi. The rationale is as follows: One of ordinary skill in the art would have been motivated to control the coefficient K based on an interval of the guide grooves in order to accurately detect cross talk errors in the detection signal (see Kuribayashi par. 145, 146) and to eliminate cross talk in the reproduction signal (par. 144)

Response to Arguments

Applicant's arguments filed 9/26/2006 have been fully considered but they are not persuasive.

Regarding applicants argument that Katayama fails to disclose that the second and third area have an identical phase structure, this argument is not persuasive for at least the reason that the limitation is not in the claim or the specification. The claim as recited requires that a first middle area is the reference phase, the second area on one side is shifted by 90 degrees from the first area in it's periodic structure and the third area on the other side is shifted by 180 degrees from the second area (opposite phase than the second area). Therefore, the third area is simply shifted -90 degrees from the first area, and the second area is shifted +90 degrees from the first area. Katayama discloses that the second area is $+\pi/2$ from the first area (18a, fig. 7 and col. 10 lines 61-64), and the third area is $-\pi/2$ from the first area (18c, fig. 7 and 10 lines 64-67)

Regarding applicant's argument with respect to claim 4, that Kuribayashi fails to disclose wherein the coefficient K is set depending on the track pitch, this argument is not persuasive because Kuribayashi discloses wherein the coefficient setting units 19, 20, fig. 1 set the coefficients in order to account for an offset that is dependant on the track pitch (pars. 99-102 and figs. 2a-2c, and fig. 3). Applicant acknowledges that the offset amount does vary based on track pitch, but argues that the coefficients are not varied based on this track pitch. This argument is not persuasive because the offset amount is adjusted for using the difference between the coefficients k_{11} , k_{12} as disclosed by Kuribayashi in fig. 2a. Furthermore, Kuribayashi discloses that the coefficients can also be set to minimize a detected cross talk error

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(pars. 103-104) which is a function of the track pitch. Cross talk occurs due to interference of adjacent tracks on the information reproducing signal. For example, with a smaller track pitch using the same beam size, more cross talk would occur due to more interference from neighboring tracks.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

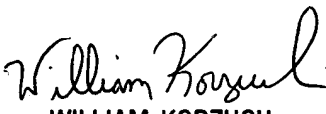
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


T. Goma
11/29/2006


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